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Federal - State Cooperative
Snow Surveys and Water Supply Forecasts

ARIZONA



Data included in this report were obtained by the agency named above in cooperation with the Federal, State and local organizations listed on the last page of this report.

-AS OF-

MAR. 15, 1954

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

Forecasts by U. S. Weather Bureau of total annual streamflow October-September, inclusive, at more than 300 gaging stations are issued monthly January through May in the publication WATER SUPPLY FORECASTS FOR THE WESTERN UNITED STATES.

Weather Bureau forecasts of runoff presented in that bulletin are computed from procedures based on mathematical analysis of the relation between precipitation and runoff.

The Weather Bureau bulletins may be secured by writing to:

Hydrologist in Charge River Forecast Center U. S. Weather Bureau 712 Federal Office Building Kansas City 6, Missouri

For current information on local river and flood conditions, reference should be made to the appropriate River District Office, listed below:

Meteorologist in Charge............Colorado River and
Weather Bureau Airport Station tributaries in Arizona
3000 Sky Harbor Blvd., except San Juan
Phoenix, Arizona

State of Arizona

FEDERAL-STATE COOPERATIVE SNOW SURVEYS AND IRRIGATION WATER FORECASTS

FOR

ARIZONA

Report Prepared

by

W. E. Anderson - Snow Survey Leader

Soil Conservation Service 39 North Sixth Avenue Phoenix, Arizona



The following organizations cooperate in the Arizona snow survey work:

FEDERAL

Department of Agriculture

Forest Service
Apache Forest
Coconino Forest
Coronado Forest
Gila Forest
Kaibab Forest
Prescott Forest
Sitgreaves Forest
Southwestern Fores

Southwestern Forest and Range Experiment Station, Fort Valley, Arizona Sierra Ancha Forest Experiment Station

Soil Conservation Service

Department of Commerce Weather Bureau Arizona Section

Department of Interior

Bureau of Reclamation Region III

Geological Survey
Arizona District

Bureau of Indian Affairs Fort Apache Reservation

National Park Service Grand Canyon National Park

Gila Water Commissioner, Safford, Arizona

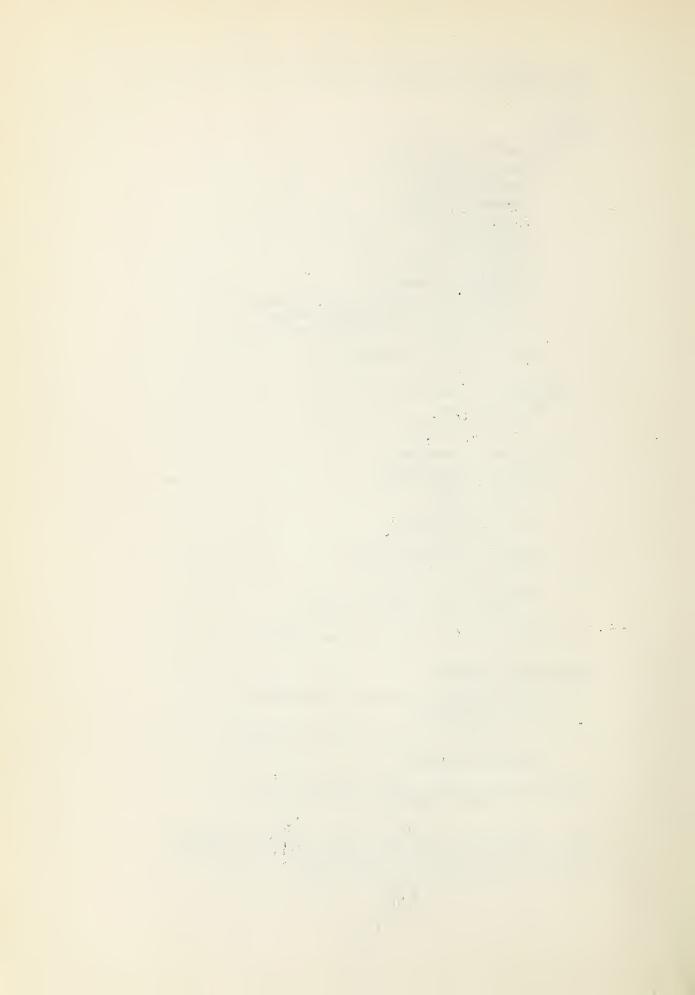
IRRIGATION PROJECTS

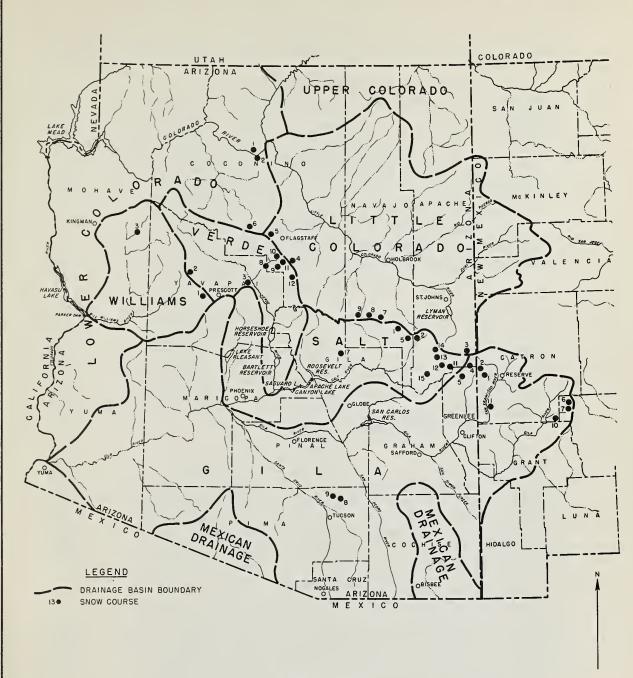
Salt River Valley Water Users' Association, Phoenix, Arizona

San Carlos Irrigation and Drainage District, Coolidge, Arizona

SOUTHWEST LUMBER MILLS, INC., McNary, Arizona

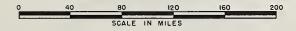
Other organizations and individuals furnish valuable information for the snow survey reports. Their co-operation is gratefully acknowledged.





ARIZONA COOPERATIVE SNOW SURVEYS

SNOW COURSES AND DRAINAGE BASINS
JANUARY 1954



NUM	ABER .	NAM	AE .	SEC	TWP	RGE*	ELEVATION
		LITTLE COLOR	ADO RIVE	2			
2. 3. 4. 5. 7. 8. 9.	Farest Dale McNary Nutriaso Mormon Lake Fort Valley Gentry Heber Canyan Creek Mormon Mountain Happy Jack			. 14	. 8N . 6N . 18N . 22N . 11N . 11N	6E	7,200 8,500 7,350 7,600 7,600
		WILLIAMS R	IVER_				
2.	Iran Springs			. 3	. 16N	6W	
1	Evices Divide (N. M.)			21	40	20/4/**	9 000
2. 3. 4. 5. 6. 7. 8. 9.	Rase Canyan			. 6	65 6N	21W	
		VERDE RI	∕ER_				
2. 3. 4. 5. 6. 8. 9. 10.	Fart Valley Chalender Munds Park Casner Park Antelape Park Mormon Mauntain			. 3	. 16N	6W	6,200 5,700 7,100 7,350 7,100 6,500 6,930 7,500 7,630
1.	Farest Dale	<u> </u>		. 2	. 9N	21 E	6.000
2. 3. 4. 5. 7. 8. 9. 11. 12. 13. 14.	McNary Nutriasa Caranada Trail. Milk Ranch Gentry Heber Canyan Creek Big Lake Knoll. Maverick Ford Baldy Ft. Apache Pacheta Workman Creek		At	. 14	8N	23E	7,200 8,500 8,500 7,000 7,600 7,600 7,500 9,050 9,160 7,800
		LOWER COLORA					
2. 5.	Bright Angel Grand Canyan			21	. 30N . 22N	4E 6E	7,500

^{*} All in Gila and Salt River Base and Meridian except where atherwise indicated.

^{**} New Mexica Principal Meridian

WATER SUPPLY OUTLOOK

ARIZONA

MARCH 15, 1954

WATERSHED CONDITIONS

All lower courses are bare and the depth of snow stored water on higher courses does not give cause for any optimism at this time. Truck travel is possible with only minor difficulty for the entire length of the rim road - A most unusual condition at this date. Some courses were read subsequent to the storm of March 16, but field reports do not indicate any reportable improvement in overall conditions. Some three inches of new snow was deposited by this storm in the White Mountain area, with somewhat greater amounts reported in spots and generally toward the Flagstaff area - Significantly dry soil conditions were reported from most courses, generally those on which observations were made prior to March 16. Only in a few courses were moist to wet soil conditions noted, and in every case where snow was reported it was also noted that thawing conditions prevailed.



STREAM FLOW FORECASTS

No improvement in runoff potential can be reported. Almost total lack of snow cover, and soils that are below normal in moisture content, indicate the severity of the moisture deficiency. Conditions have been so far below normal that the small amount of additional water which could be expected from the March 16 storm will have little noticeable affect. Late season storms of sufficient intensity and duration to improve the outlook could still occur but the probability of such storms decreases each day. Only a storm of extreme duration or near catastrophic proportions would be sufficient at this time to produce near normal conditions.

For convenience, the March 1 forecast is reproduced pelows

River	At	February - May Inclusive Discharge Forecast Acre Feet. *		
Salt	Intake	40,000		
Conto	Roosevelt	3,000		
V _e rde	Horseshoe	40,000		
Gila	Virden	7,500		
Frisco	Clifton	6,500		

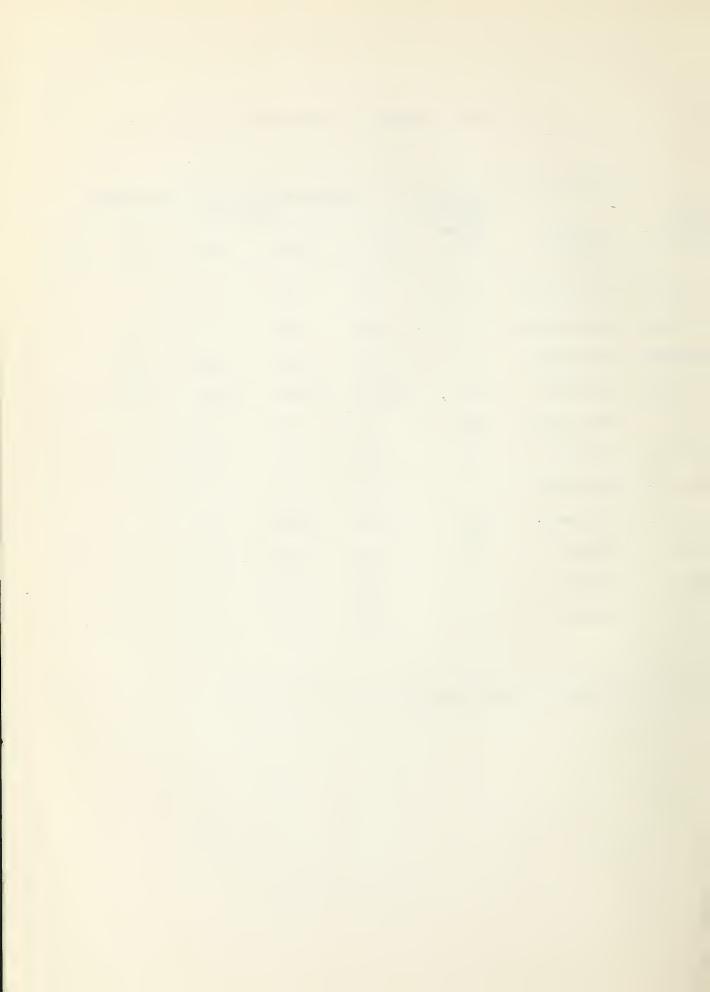
^{*} These figures represent base flow estimates based on past records and present trend changes and would constitute new low base flow quantities.

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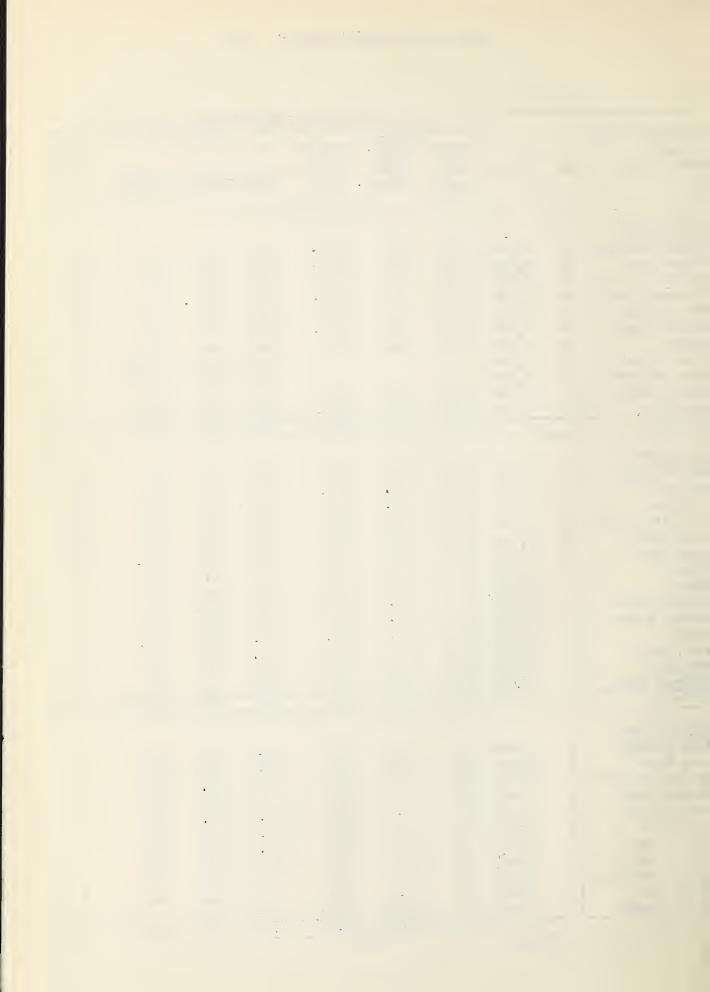
STATUS OF RESERVOIR STORAGE MARCH 15, 1954

BASIN		USEABLE CAPACITY	THOUSAND ACRE FEET IN STORAGE ABOUT MARCH 15							
and STREAM	RESERVOIR	(Thous. A.F.)	1954 1953		1952	1951	10 Ye Avera 1942-19			
Agua Fria	Lake Pleasant	178	32	82	128	1	12			
Colorado	Lake Havasu	688	606	608	610	626	602			
Colorado	Lake Mohave	1,810	1,764	1,586	1,586	1,587	**			
Colorado	Lake Mead	27,935	16,031	18,172	16,115	17,031	18,337			
Gila	San Carlos	1,285	0	17	159	0	215			
Verde	Bartlett	180	52:	47	152	7	58			
Verde	Horseshoe	143	3	1	76	1	15			
Salt	Roosevelt	1,382	549	1,047	559	6	477			
Salt	Apache	245	243	242	217	159	201			
Salt	Canyon	58	55	53	46	52	39			
Salt	Saguaro	70	57	59	48	46	35			

^{*}Average for years 1946 through 1951.



DRAINAGE BASIN				1954	OV EAT IV	EASUREMENTS Past Record			
and			Date	Snow	Water		E 220 1	60014	Year
SNOW COURSE	No.	Elev.	of	Depth	Content	Weter	Conten	t (in.)	of
	1101	DIO	Survey		(in.)	1953	1952	Average	Reco
				(
GILA RIVER									
Frisco Divide	1	8,000	3-15	0.0	0.0	1.2	2.1	1.4	14
State Line	2	8,000	3-15	0.0	0.0	0.5	2.9	2.1	14
Nutrioso	3	8,500	3-15	0.0	0.0	0.6	3.3	1.8	13
Coronado Trail	4	8,000	3-15	0.0	0.0	1.2	6.7	3.4	13
Beaverhead	5	8,000	3-15	0.0	0.0	1.3	7.8	3.0	13
Taylor Creek	6	7,850	3-16	0.0	0.0	0.0		0.3	8
Inman	7	7,800	3-16	0.0	0.0	0.0		0.6	4
Rose Canyon *	8	7,300				0.0*	4.0*	0.9*	6
Bear Wallow*	9	8,100				4.0*	5.2*	2.7*	6
Black Canyon	10	6,790	3-16	0.0	0.0	0.0	40 40	0.0	1
Mogollon	11	7,000	3-16	0.0	0.0	0.0		0.0	1
Averag e				0.0	0.0	0,5	4.6	1.4	
SALT RIVER									
Forest Dale	1	7,000	3-14-	0.0	0.0	0.0	2.6	0.4	14
McNary	2	7,200	3-14	0.0	0.0	0.6	5.4	1.5	14
Nutrioso	3	8,500	3-15	0.0	0.0	0.6	3.3	1.8	13
Coronado Trail	4	8,000	3-15	0.0	0.0	1.2	6.7	3.4	13
Beaverhead	5	8,000	3-15	0.0	0,0	1.3	7.8	3.0	13
Milk Ranch	5 5	-	3-14	0.0	0.0	0.2	4.0	0.8	13
	7	7,000	3-16	0.0	0.0		8.3	2.8	3
Gentry	8	7,600	3-16	0.0	0.0	1.9	9.3	2.8	4
Heber		7,600 7,500	3-16	0.0	0.0	3.3	11.6	3.7	4
Canyon Creek Maverick Fork	9 12		3-17	8.8	2.1	8.0	17.9	11.0	3
		9,020	3-17	10.7	2.3		15.6	7.8	4
Baldy	13	9,125		10.8		8.4 7.3	16.8	8.1	4
Ft. Apache	14	9,160	3-17	0.0	4.5		9.7	3.2	3
Pacheta	15	7,800	3-15		0.0	0.0		7.1	2
Workman Creek Average	17	6,900	3-15	2.2	0.0	2.9	9.8	4.1	٤,
				200					
VERDE RIVER	1	6,200	3-12	0.0	0.0	0.0	5.2	1.1	8
Iron Springs Camp Wood	1 2	5,700	3-15	0.0	0.0	0.0	3.7	0.6	8
-	3	7,100	3-15	0.0	0.0	T	3.7	0.0	6
Mingus Mountain				0.9	0.3	0.7	11.9	6.8	6
Mormon Lake	4	7,350	3-15	0.9	0.0	0.0	9.1	2.8	7
Fort Valley	5	7,350	3-15				11.3	3.6	7
Chalender	6	7,100	3-15	0.0	0.0	0.3		2.0	4
Mond's Park	8	6,500	3-15	0.0	0.0	0.0	8.0		
Casaer Park	9	6,930	3-15	0.0	0.0	0.0	11.1	2.8	4
Mormon Mountain		7,500	3-15	1.4	0.6	1.9	14.8	5.2	4
Happy Jack	12	7,630	3-15	0.0	0.0	T	11.6	4.0	3 0
Gaddes Canyon	13	7,600	3-15	6.2* 0.2	2.3*	0.3	9.0	* 3.0	U



ARIZONA SNOW SURVEY MARCH 15, 1954

					SNOW COVE	R MEAS	UREMENT	.S	
DRAINAGE BASIN				4	PA				
and			Date	Snow	Water				Years
SNOW COURSE	No.	Elev.	of	Depth	Content	Water	Conten	t (in.)	of
			Survey	(in.)	(in.)	1953	1952	Average	Recor
WILLIAMS RIVER			**************************************						
Iron Springs	1	6,200	3-12	0.0	0.0	0.0	5.2	1.1	8
Camp Wood	2	5,700	3-15	0.0	0.0	0.0	3.7	0.6	8
Willow Ranch	3	5,000				-	0.5	0.1	5
Average				0.0	0.0	0.0	4.4	0.8	
LOWER COLORADO	RIVER	·····							
Bright Angel	1	8,400	3-15	19.3	4.6	5.4	24.6	11.5	7
Grand Canyon	2	7,500	3-15	0.0	0.0	0.4	7.3	2.1	7
Fort Valley	5	7,350	3-15	0.0	0.0	0.0	9.1	2.8	7
Chalender	6	7,100	3-15	0.0	0.0	0.3	11.3	3.6	7
Average				4.8	1.2	1.5	13.0	5.0	
LITTLE COLORADO	RIVE	īR.							
Forest Dale	1	7,000	3-14	0.0	0.0	0.0	2.6	0.4	14
McNary	2	7,200	3-14	0.0	0.0	0.6	5.4	1.5	14
Nutrioso	3	8,500	3-15	0.0	0.0	0.6	3.3	1.8	13
Mormon Lake	4	7,350	3-15	0.9	0.3	0.7	11.9	6.8	6
Fort Valley	5	7,350	3-15	0.0	0.0	0.0	9.1	2.8	7
Gentry	7	7,600	3-16	0.0	0.0	-	8.3	2.8	3
Heber	8	7,600	3-16	0.0	0.0	1.9	9.3	2.8	4
Canyon Creek	9	7,500	3-16	0.0	0.0	3.3	11.6	3.7	4
Mormon Mountain	11	7,500	3-15	1.4	0.6	1.9	14.8	5.2	4
Happy Jack	12	7,630	3-15	0.0	0.0	T	11.6	4.0	3
Average				0.2	0.1	1.0	8.8	3.2	

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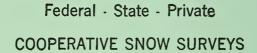
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LIST OF SNOW SURVEYORS

SNOW COURSE	SURVEYOR
	O.GO 1 ODITAGI
balay • • • • • • • • • • • • • • • • • • •	SCS and SRVWU
	Wm. Hughes
Diameter Confidence of the Con	E. Van Winkle
2129	Valentine
	Mrs. C. C. Merritt
V	SCS and SRVWU
Casner Park	SCS and SRVWU
Chalender	V. J. Schroeder
Coronado Trail	Frank Casanova
Forest Dale	Wm. Fair
Frisco Divide	J. B. Shumate
Ft. Agache	SCS and SRVWU
Fort Valley	A. P. Loska
Gaddes Canyon	Richard Enz
Gentry	SCS and SRVWU
Grand Canyon	
Happy Jack	
Heber	
	F. M. Inman
Iron Springs	-
Maverick Fork	
Milk Ranch	
	Richard Enz
<u> </u>	J. R. Wray
	SCS and SRVWU
	SCS and SRVWU
	SCS and SRVWU
	Wm. Fair
· ·	Frank Casanova
Pacheta	
Rose Canyon	
State Line	
Taylor Creek	
Willow Ranch	
	C. L. Moore

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Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"